The Newsletter of Botanical Dimensions

# Plant Wise

Issue #3 Summer 1990

## TROPICAL ETHNOMEDICINE CONFERENCE RAISES IMPORTANT QUESTIONS

Botanical Dimensions and Esalen Institute co-sponsored an invitational conference on tropical ethnomedicine from April 22 to 27, 1990. It was held on the beautiful grounds of Esalen Institute on California's Big Sur coast.

Participants included Edward Anderson, Professor of Biology at Whitman College in Washington State, recipient of World Wildlife Fund support the past four years to study the ethnomedicine of the people of Northern Thailand; Bret Blosser, field ethnologist and educator in MesoAmerica; Carol H. Browner, professor of psychology and anthropology at UCLA, has published studies of the herbal healthcare of women in Colombia and Mexico; Lewis John Carlino, filmwriter and director who has recently been in Brazil researching environmental and social upheaval, particularly among the Yanomami; Jilly Carlino, environmental activist and film producer; Patricia Faul, Earthwatch representative; Caroline A. Garcia, Rex Foundation director and plant specialist; Steven R. King, ethnobotanist with the Nature Conservancy and Shaman Pharmaceuticals; Dr. Charles Limbach, physician and ethnomedical researcher recently working in Ecuador; Dr. Xavier Lozoya, ethnobotanist with the Instituto Mexicano del Seguro Social in Mexico, founder of the Mexican Institute for Study of Medicinal Plants; Nicole Maxwell, author and botanical explorer of the Amazon Basin; Mabel Fentress Miller, environmental educator for Dade County, Florida; Kathleen Harrison McKenna and Terence McKenna.

The conference took the form of a five-day open discussion of the issues most compelling or troubling to those of us working in the many diverse aspects of tropical folk-medicine. The success of the meeting was due in large part to the participants' willingness to engage in a novel process of communication. Many relevant, helpful and disturbing topics were introduced and discussed openly by the group. The conference acted to initiate new relationships and joint projects, as well as to clarify our resolve in our various fields.

The discussion topics were linked by a common concern for the ethical questions of doing ethnobotanical research, particularly in third-world countries. A major issue is

*(continue next page)*

## A LETTER FROM THE EDITOR

As you might have noticed, PlantWise missed the Spring issue. Following the experienced advice of our friend Ralph Metzner (BD director and editor of the fine and occasional Green Earth Observer), the newsletter has relinquished the quarterly mandate and become a true periodical. Balancing my ever-more-intense spectrum of life and work, at home and on the road, is a very full job. For the forseeable future I will go with the flow of the work-at-large and publish whenever I can. This issue of PlantWise includes news and material from January to June of 1990, reflected in its extra pages. I apologize to those who have wondered if their names slipped through the crack, and assure you that your $20 (minimum) donation will bring you four issues, whenever that might be. Please be aware that this is not merely a subscription, but a contribution to our work, for which we reciprocate with information.

Based on the recent travels of ourselves and friends into the geography of the Maya, in this issue we explore some questions about their survival against all odds, their *farmacia* (the forest), their worldview. I had traveled through Mayan Mexico several times before, but this time we went beyond into Belize and the Peten region of Guatemala. I was struck, as ever, by the enduring beauty of the Maya, their seeming balance through 400 years of post-colonial diversity; I was saddened by the losses and abuse they are still suffering, especially in Guatemala, heartened by their ability to shift locality, intermingle language groups, watch and wait, even laugh. Their awareness of time—long time—is still vibrant in their interactive calendars. Some do forget the old ways, some remember, many adapt from ancient past directly to future, a new mix.

The Mayan dilemma illustrates a chilling quandary I find myself and others in: Is what we are doing too little, too late? Even thinking it lets the darkness come closer than arm's length, debilitating activism of any sort. We know the effort we each make is a drop in the bucket, but every drop counts. As ethnobotanist Steve King said at our recent conference, "We have to save what we can no matter what is going to happen." Great social progress seems to be occuring now, or on the verge in many places, and at least we have largely awakened to the environmental crises, enough to begin to do battle where necessary, heartbreakingly late as it is. When we look at the many fronts that need attention, from preserving tribal land stewardship to replanning our cities to keeping Earth breathing, it seems that in the future—from now on—*everyone* will have to be an activist. Everyone will have to take responsibility for some facet of being a citizen of Earth, whether on the most local or most global level, and do a good job of it. It's really the only way it will work. This will require (as our children say) a motherlode of respect. For now, after armwrestling doubt once again, we collect plants, ask them to heal us, to teach us, and give them our respect. Thanks for listening.

May we all become wise in the way of the plants.

Kat

Kathleen Harrison McKenna
President, Botanical Dimensions

how to reciprocate when an individual or an institution is collecting medicinal plants from a country and culture with a tenuous economy, often with a history of both natural and cultural resources having been appropriated by colonizers. Does the plant belong to the healer who uses it, the community, the native population, the government, anyone? Who "owns" the information that makes the plant meaningful to us: The individual who heals with it? The culture that has discovered its use over the ages? Surely not their government? What kind of compensation is appropriate: Money? To whom? From whom? (Collector, pharmaceutical company, first-world patients?) Should there be royalties on cultural wisdom, as is done with other information in our culture? Or other less tangible gifts and privileges, returned more specifically to the source culture, such as information about the botanical treasures they possess; education of indigenous people to collect, identify, use, propagate, and the opportunity to produce the drug/plant themselves for the world market. Perhaps land title should be returned to the original plant-wise inhabitants, and as the consumer culture we could influence this. A multi-leveled question.

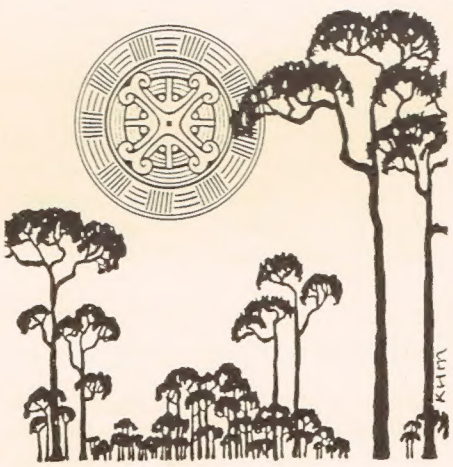
As a group, we attempted to create a model of the future of ethnobotany, of third-world self-care, of global ethnomedicine and the environmental and cultural guidelines necessary to see it work. In further issues of PlantWise, some of the presentations and discussions may be described in depth.

## HIGHLIGHTS OF CONFERENCE

**Dream:** Bring a tropical medicinal plant out of the forest as a banner for conservation.

**Question**: What philosophical framework would you like to see, what changes?

*Dr. Xavier Lozoya:* A WHO Center for Latin America. Maintain contact with very interesting scientific individuals, not institutions. In Mexico, institutions, funding, priorities shift with the powers that be. Would like to find a key: How to use the "intellectual colonialism" rather than push against it? Traditional medicine in Mexico is an *adapatation*, interactive with modern medicine, new diseases, changing populations. Medicine is a manifestation of culture. Through transculturation we could have a rich network of new definitions, new techniques.



"In Mexico everything occurs on a magical background....Scientists are in the monastery, there is chaos outside."

**Discussion:** Decentralization is occuring. Give the power of decision to the community. Act locally to train local people, teach them to study and collect their medicinal plants, set up clinics with traditional healers, provide both modern and traditional medical options.

**Models of Reciprocity**

Land title be returned to source people when plants or knowledge is taken.

Ensure education of the young, the basis of the future. Being literate in one's own language empowers one. In Ecuador, school is radio-broadcast to reach everyone. "Telemaestros" are teachers on radio.

Medical students could spend time in indigenous areas as part of training. Bring modern techniques and learn traditional medicine. Make it clear that this is exchange.

Migratory population management, with respect for the nomadic lifestyle, even here in California. Explore the whole question of nomadic rights in all regions. And does their herbal medicine move with them?

Encourage transmission of knowledge from healers to apprentices.

**Ripple effect**: Drop a pebble, create an *effective expanding network.*

## WHAT IS BOTANICAL DIMENSIONS ?

Botanical Dimensions is a non-profit 501(c)3 organization, founded in 1985, dedicated to collecting living plants and surviving plant lore from cultures practicing folk medicine in the tropics worldwide. Ethnobotany is the study of plants used by people: for food, fiber, building and medicine. Ethnomedical plants are those used to prevent and cure illness, to maintain well-being of the body, mind and spirit. Because the medicinal plants are endangered, we support live plant and seed collection efforts in Central and South America, Africa and Asia. We maintain an extensive botanical garden in Hawaii, propagating the living collection for research and genetic diversity. In California, we coordinate educational outreach, keep a plant database, fundraise, and publish this newsletter, PlantWise.

*The shamanic tradition of plant medicine is as fragile as the rainforest itself.*

## THE HUMAN DIMENSION

Botanical Dimensions was founded by Kathleen Harrison Mc Kenna, president, and Terence Mc Kenna, secretary. We are joined on our board by many fine individuals who share our deep interest in plants and the quality of human life.

Finn McKenna

# UPHILL DOWNHILL

**by Kat McKenna**

## Travels to the Maya and Other News

Soon after the last **PlantWise**, the entire McKenna family—Terence, Finn (12), Klea (9), and myself—found its way to Mayan country, welcoming the decade amid ruins and flamingos, which seemed appropriate. We spent a couple of weeks in the Yucatan and Chiapas regions of southern Mexico, including a fine time at Palenque while Terence held forth from the Temple of Inscriptions for a German documentary. The kids and I watercolored, climbed ruins, studied flora and fauna, and sought every form of swimmable water, of which there are many. This was the fancy part of the trip.

At the Belize border we got on the local bus heading south, for several weeks of the wonderfully unexpected in a Caribbean Black/Maya/British culture that was new to us. Some time on a reef island was followed by a lengthy and exceptional visit to western Belize, hilly, laced with fine rivers and caves, near Guatemala. There we met European and American refugees living very simply, old indigenous Mayan families, and visited an entire village of Maya who had relocated there from Mexico during the 19th-century colonial efforts to eliminate them.

A few rewarding days were spent traveling across the border to the magnificent ruins of Tikal in Guatemala, and on to Lake Peten Itza so I could meet the herbalists described here in *From the Field*. By that time, Terence and I could not restrain our plant-collecting instincts any longer, and in both Guatemala and Belize gathered a number of species both from the wild and from gardens. (The plants are now residing in Hawaii.)

We were pleased to hear that emissaries from the New York Botanical Garden were in western Belize collecting bulk medicinal plant material for anti-cancer screening by the National Cancer Institute. The NCI directive is now to ask local herbalists for any plant with suspected activity, which is a big step up from previous random sampling. It would be more rewarding if the tests also searched for other medicinal properties.

In San Ignacio, Belize, I met Don Eligio Panti (PW#1), an aging Mayan healer who uses plants and prayer very effectively on his many patients, who are mostly thirty and older, as he says the young ones only want the little pills. He has in recent years taught an American, Rosita Arvigo, some of his life's work and she and her family maintain a medicinal plant demonstration farm not far away. He still has not found an indigenous apprentice, and says he is now too old, that Rosita will have to carry on. He sparkles as he sits among his burlap bags of leaves, under a tin roof, thunder and rain hammering, speaking Maya and Spanish with a fine old ladyfriend and me. I love his camouflage-cloth Pepsi cap. Taught some of what he knows by a *curandero*, he says most of his knowledge came to him from "the spirits." It is heartening that some of us can learn to listen even as many are forgetting.

We visited a vast and spectacular limestone cave, signs of ancient habitation, with stalactites, carved by the Rio Frio flowing in one side and out the other. The river creates a white sand beach within the cave, where there were fresh jungle cat prints in the wet sand. Just outside the mouth of this clearly feminine and honored sacred place, Terence was jubilant to discover *Euphorbia lancifolia*, growing "wild." Its Maya name, *ixbut*, means "woman-flow," and it is prized as a breastmilk-stimulator (see article in this issue). We had our Harvard Botanical Leaflet in hand, as we had been looking for that species, and left cuttings of *ixbut* for local propagation with a marvelous German/English family we met nearby. Manfred, Janet and their six children maintain a productive organic farm and a charming hardworking lifestyle. They have Mayan ruins on the border of their valley farm and, as we combed the native plants growing near there, Manfred humorously protested, "I show you my beautiful farm and all you talk about are the weeds !" Ah, ethnobotany.

In March I had a very productive and satisfying trip to the Big Island, cataloging plants for two weeks. Many seeds are coming in from the Peruvian Amazon, some germinating. It is hard to keep up with the records and attempts at identification, and in the future we hope collectors can identify more species to their Latin names while in the native country.

The big project for Botanical Dimensions this spring was the invitational conference on tropical ethnomedicine at Esalen, which was largely paid for by Esalen and its donors, for which we are very grateful. It was an excellent group, high-level conversation, good format. There may be more.

Thus far in 1990 BD has been awarded grants from the Rex Foundation ($10,000), Laurance Rockefeller's Fund for the Enhancement of the Human Spirit ($12,500), and the Rainbow Warrior Fund of the Tides Foundation ($5,000), which are greatly appreciated. Thanks also to private donors (especially Carolyn Kleefeld), who have contributed $9,500 in the first half of 1990. Subscriptions to **PlantWise** now number about 300, and we give many away at each public event. Our annual Southern California fundraising event will be held this year on Saturday, October 20, at the Dorril Wright Cultural Center, Port Heuneme, CA. (Call 805-984-4650.) Terence will be the featured speaker, and we hope to see many friends and supporters there.

The next **PlantWise** will include at least two excellent book reviews and a partial species list from our in-progress database. Please show this newsletter to someone new!

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*From the Popol Vuh, a Quiche Maya creation myth and history of the world, as translated by Dennis Tedlock, Simon and Schuster, 1985, naming the creator as Quetzalcoatl or Kukulkan, the Plumed Serpent:*

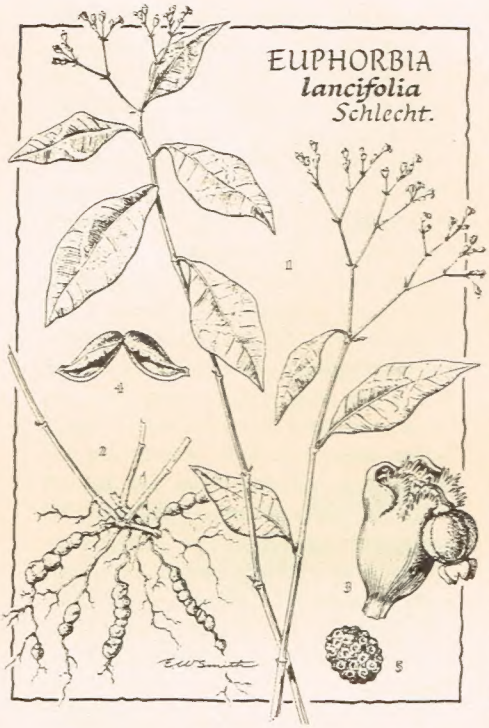
Now it still ripples, now it still murmurs, ripples, it still sighs,
still hums, and it is empty under the sky.
Here follow the first words, the first eloquence:
There is not yet one person, one animal, bird, fish,
crab, tree, rock, hollow, canyon, meadow, forest...
The face of the earth is not clear.....
Only the Maker, Modeler alone, Sovereign Plumed Serpent,
the Bearers, Begetters are in the water, a glittering light.

# Ixbut: An Ancient Mayan Galactagogue

by
**Dennis J. McKenna, Ph.D.**

Every once in a while, while browsing through the myriad anecdotes that make up the bulk of much ethnobotanical lore, one turns up a story so difficult to give any credence to that it must surely be the purest of plant superstitions. Examples of such ethnobotanical phantasmagoria include the famed man-eating plant of Madagascar, or the African ordeal poison, *Radix pedis diaboli*, the Devil's foot-root, of which it is said that the merest whiff produces an intoxication characterized by extreme fear and, ultimately, madness and death. However, anyone who has engaged in ethnobotanical research can testify that there is usually a grain of truth in even the wildest of "tall plant tales." For instance, from what science now knows of the properties of some of the beta-carboline alkaloids, which are found in a number of African genera, it is not at all implausible that an ordeal poison similar to the mythical Devil's foot-root might well exist.

Almost as fantastic, but considerably more grounded in fact, is the Mayan galactogogue known as *ixbut* (pronounced "ish-boot") to local curanderos in Guatamala and El Salvador and as *Euphorbia lancifolia* to botanists. An herbal tea prepared from the leaves of this plant, which is widely distributed in Guatemala, Belize, El Salvador, Honduras, and Eastern Mexico (where it is known as *hierba leche*, or milk-herb) is said to be the remedy of choice for stimulating lactation and increasing the flow of milk in post-partum women. Such a claim is not unreasonable, as this is the action of the natural peptide hormone prolactin, and plants may well contain compounds which stimulate prolactin secretion or themselves exert a prolactin-like effect. Somewhat less believable are the tales that *ixbut* tea can also stimulate lactation in aged grandmothers or even great-grandmothers, and is used for this purpose in cases where the mother has died in childbirth. But consider the following account by a physician, Dr. Pedro Molina F. practicing in Guatamala in the late 1890's: One afternoon, Dr. Molina was urgently summoned to assist in childbirth at the home of a native woman near his residence in Flores, Peten. By the time he arrived, it was too late to save the mother, but the baby girl




survived. Dr. Molina then asked the feeble great-grandfather, who appeared to be at least ninety years old, what woman was going to nurse the infant. The great-grandfather replied that there were no other women around, but none was needed as he himself was going to be the wet nurse. He would prepare a tea from the medicinal herb *ixbut* which would enable him to provide milk for his new great-granddaughter! Dr. Molina reacted with understandable skepticism and reluctantly departed. Six days later, Dr. Molina returned to find the old man boiling *ixbut* leaves in a pot of water. He had been drinking the infusion for five days, and complained that his swollen breasts hurt him when the infant suckled. The physician examined the old man's breasts which were indeed swollen and exuding a milky liquid that looked and tasted like mother's milk. The baby was thriving! Conservationist Mark Plotkin related a similar tale to me which he said he heard from a Guatamalan woman of his acquaintance. As he pointed out, it's hard to believe such stories, but it's unlikely that the woman came by this notion from reading the Journal of Ethnopharmacology. So perhaps there is some truth to the story after all. Certainly it is a tale of folk medicine that borders on the miraculous.

There is certainly enough evidence of *ixbut's* ability to stimulate lactation, at least in women of child-bearing age (as well as in cattle; one of the commonest uses of the plant in Guatamala is as a feed supplement, given to dairy cows to increase their milk yields), that the plant would appear to be well worth further investigation. In 1949, Dr. Manuel Serrano, a Guatamalan botanist and chemist, in collaboration with Merck & Co., conducted a controlled study of a group of nursing mothers in the General Hospital in Guatamala City. Of 86 women in the study, 54 experienced an abundant increase in milk production after taking *ixbut*. In some cases, mothers who had been unable to nurse were able to do so after taking *ixbut* tea for several days. Additional studies, conducted by Dr. Efron C. del Pozo of Mexico City between 1949 and 1951, again with Merck & Co., produced less clear cut results. Dr. Pozo concluded that the lactogenic qualities of *ixbut* had been greatly exaggerated. He did point out, however, that his studies were conducted on nursing mothers from two to fourteen months after childbirth, while the striking effects reported in folk medicine refer mainly to the use of *ixbut* in the first few days after delivery when lactation is induced.

Largely on the basis of Dr. Pozo's equivocal results, Merck dropped further investigation of *ixbut* in 1951 without having identified any active principle. Forty years later, there has been no further work on its constituents or pharmacology and an active ingredient, if indeed it is there, has yet to be uncovered. Folk use of the plant continues to the present. Further phytochemical and pharmacological evaluations of this remarkable Mayan medicine would definitely seem worthwhile.

*Editor's note:* Wild specimens of *Euphorbia lancifolia* (absolute identification pending) were collected by Terence and Kat McKenna in Western Belize in early 1990 ("Uphill Downhill", this issue), and are now being grown for study in Hawaii. For further information on this plant see "A Neglected Mayan Galactogogue," by Frederic Rosengarten, Jr., Botanical Museum Leaflet, Harvard University, Dec. 1978.

## Two Tales from Guatemala

Dona Erundina Cortez de Camal is an Itza Maya healer of San Andres, on Lake Peten Itza in the Peten region of Guatemala. Last March she prepared a number of medicinal plant seedlings for me to bring to Botanical Dimensions. She explained that four of them--*ixcanam morado, ixcanam verde, selemoy* and *Santo Domingo*—are used together to cure victims of witchcraft when the symptoms are: "head hurts, no strength, does not eat or sleep, only thinks." As I jotted down her information I wondered what disease category of our medical system might correspond to this supernatural affliction. Dona Erundina spread the fluid and the cooked leaves over the patient's body. "Give the patient a cup of the infusion to drink," she said, "to clear the mind." Then, she explained, rasp *incensio* (an unidentified tree) bark and burn it as incense under the patient "to free the soul." Finally, she demonstrated how to flick holy water above the head and shoulders of the patient. She concluded by beaming confidently and saying, "That's sufficient, that will do it."

Dona Erundina's presentation of the elements of this cure jogged me out of my usual ethnobotanical note-taking routine. I normally focus on information about the plants, the preparation and administration of plant medicine, and the symptoms which indicate the use of the medicine. I realized that she was showing me how to cure such patients, not just how to mix up and give the medicine. The healing potential of a radiant, confident medical practitioner offering a cup of medicine "to clear the mind," burning incense "to free the soul," flicking holy water in close to the body, and assuring the patient "That's sufficient, that will do it" was clear to me. I felt better myself just going through the procedure with her.

However these non-plant aspects of traditional medicine work, they certainly are an important part of healing and deserve our attention as we investigate the old plant-healing systems.

**Bret Blosser**

The herbalist couple, of the Itza Maya, live in a tiny steep village on the shore of Lake Peten Itza, Guatemala. I had an introduction from Bret Blosser, who has worked with them collecting plants in the wild. On a shining day in January, my son Finn and I hired a boatman to ferry us across the lake, hoping to find Sr. Rosendo and Sra. Erundina at home.

We climbed to the very top of the town, past a pale turquoise school with Mayan glyphs painted on it, near the crest of the hill, to their little, brilliant viridian house. Through the gate, to the open door. About ten females of all ages were in and out of the room: lying in the hammock, chatting in the corners, toddling back and forth. Tiny, perfectly-coifed blond costume dolls, attired in hand-crocheted dresses, shared a shelf with esoteric third-world kitch. I saw no pictures of the Virgin, but the Feminine was well represented. Flowers bloomed in profusion outside the windows, piglets cavorted.

It turned out the herbalist couple weren't home. We descended to a construction site they described, and found Sr. Rosendo and friends building a patio. Very centered, steady and aware, he agreed to have a soda with us and talk about plants. The boatman joined us and obviously held him in respect.

We discussed their study with his uncle, Don Eligio Panti, some years before; the kind of people who come to them for curing; the difference between the plants at the ruins of Tikal, several hours' bus trip away, and the plants that grow on the mountains around the lake. He did not know *ixbut* (the name perhaps from a different one of the many Mayan language groups?), but used for lactation external applications of a *Plumeria*, another latex-producing member of the Euphorbiaceae. We trudged up the hill to collect it from someone's garden, visiting his as well, where I collected a number of species. Daughters fluttered away as he and I entered his house to peruse several cardboard suitcases of dried leaves he had gathered on the mountainside. He likes to talk about plants.

As we headed down to our boat, we stopped into his mother-in-law's cool abode, to find Sra. Erundina just returned from across the lake. Warm and clear, she made me feel welcome to return and learn more, which I intend to do.

**Kathleen Harrison McKenna**

## BOTANICAL FIELD COURSE IN THE UPPER AMAZON

A course oriented to provide serious students with an understanding of the dynamics of rainforest ecology, direct experience with local medicinal plant use and preparation, and hands-on training in ethnobotanical field-collecting techniques.

Emphasis will be on actual experience with ethnopharmacological plant species of the area, extensive hiking at the site and individual work with both living and dried specimen preparation.

Held at a 500-acre private scientific reserve in climaxed rainforest on the upper Rio Napo in Amazonian Ecuador. $350 course fee includes full use of the remote research station's laboratory, herbarium, showers, kitchen and bunks. Meals and lodging are included. Travel arrangements and expenses are up to the individual. Guides are:

**Bret Blosser**, an ethnologist with many years' experience apprenticing with native healers as well as conducting field courses in Central America.

**Rob Montgomery**, the founder of the Botanical Peace Corps, with extensive botanical collecting experience on expeditions in Amazonian Ecuador and throughout northern South America.

Two sessions will be offered in November and December, 1990. For further information, write to:

**Botanical Peace Corps**
**Box 1368**
**Sebastopol, CA 95473**

"Between every two pine trees there is a door leading to a new way of life."
—Margin note written by John Muir in his copy of Vol. 1 of Emerson's Prose Works (Boston 1870). Muir carried this in the Sierra.

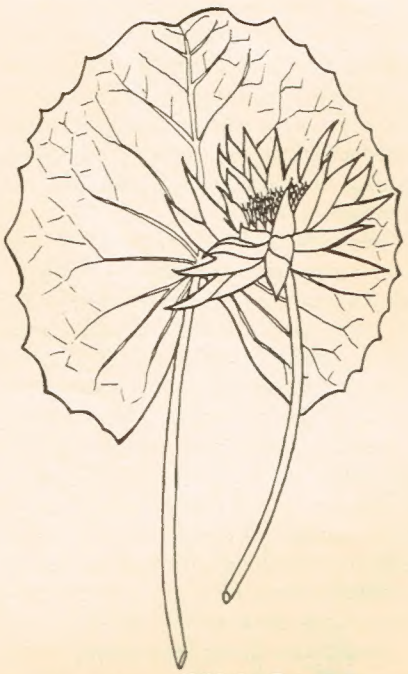
# *NYMPHAEA AMPLA:* An Unrecognized Mayan Hallucinogen ?

**by Dennis J. McKenna, Ph.d.**

The importance of hallucinogens in the religion and cosmology of pre-Columbian MesoAmerica has received commentary from numerous scholars and ethnobiologists. Indeed, there is abundant evidence from both iconographic and textual sources that the high civilizations of MesoAmerica, the Maya and the Aztecs, as well as their antecedants, were familiar with the ecstasy-inducing properties of a veritable pharmacopoeia of psychoactive, vision- and delirium-inducing plants, fungi, and even animals and that some of these, particularly the psilocybin-containing mushrooms, occupied a central position in the ceremonial rituals of the priestly caste. Although the Aztecs and Maya were certainly familiar with other psychoactive flora, at least to the extent that their use is documented in codices and their original names have survived (e.g., *ololiuhqui*, applied to *Rivea corymbosa* and other psychoactive morning-glories; *pipiltzintlitzintli*, the psychoactive mint *Salvia divinorum*; etc.) few have attained the virtual deification that seems to characterize the *Psilocybe* mushrooms. The fact that the mushrooms require almost no preparation and can reliably induce a profoundly transcendant experience may explain the attention they have received. While the other MesoAmerican psychedelics can certainly induce altered states, a certain sophistication in their preparation and sensitivity to the nuances of their effects is often needed to appreciate them.

Thus it is rather remarkable that a few scholars have suggested a most unlikely candidate, *Nymphaea ampla*, the white water-lily, as a challenger to the pre-eminent position of the magic mushrooms in Mayan culture. They even carry the argument one step further and suggest that a related species, *Nymphaea caerulea*, fullfilled a similar role as a ritual narcotic in ancient Egypt from the 4th to the 22nd dynasties. The chief proponents of this view are ethnobotanist William A. Emboden (Narcotic Plants,1979, and the Journal of Ethnopharmacology, 3:39-83, 1981), and his colleague Dr. Marlene Dobkin del Rios (Hallucinogens: Cross-Cultural Perspectives, 1984).

Emboden bases his arguments mainly on a re-interpretation of certain elements of



KHM after Frances Runyan

Mayan iconography that are also discussed by Wasson in his book The Wondrous Mushroom (1980). It seems that in very many instances, where Wasson sees mushrooms, Emboden sees water-lilies. Other scholars have remarked that in much of his writing Wasson seemed to be pursuing his own agenda, and Emboden's paper is interesting for the insight it affords on Wasson's impatience with scholars who happen to disagree with his interpretation. Wasson wrote of Emboden's treatment: "Some have suggested that it [referring to the green mushrooms in his interpretation] might be the leaf of a water lily," a hypothesis which Wasson dismissed as "mycophobia."

The purpose of reviewing this controversy here is not to validate or invalidate the arguments of either Dr. Emboden or Wasson, for both of whom the present author has nothing but the profoundest respect. Rather it is to point out that such a controversy does exist, and we may yet have much to learn about the Mayan pantheon of sacred plants. That the Maya may have regarded the flower of the water-lily as an entheogen of equal stature as the mushrooms may appear on the surface to be far-fetched, but Emboden succeeds in making the notion plausible. To his credit, in addition to the literary and iconographic interpretations that he marshals in support of his argument, he also addresses the knottier problem of the chemistry of *Nymphaeae* species, which looms as a major stumbling block. It seems that if *Nymphaea* is narcotic at all, it is much closer to a true opiate-like narcotic than it is to an entheogen or psychedelic. The rhizomes contain the alkaloids nuciferine, nupharidine and nupharine, and in addition J. L. Diaz (Annual Review of Pharmacological Toxicology, 1975) has reported isolating aporphine, a chemical analog of the synthetic opiate apomorphine, from the dessicated rhizomes. The pharmacology of the nupharadine alkaloids is not well investigated, but they appear to be primarily antispasmodic and sedative; apomorphine, although a derivative of morphine, is emetic rather than opiate in its action. Emboden is aware of all this and raises these points in his first paper; he argues that the actions of nupharine alkaloids, possibly in combination with effects of aporphine (which can be tranquilizing rather than emetic at low doses) might have elicited a psychedelic or quasi-psychedelic response. In any case, he points out that most of the chemical isolation work has been done on the rhizomes, while the evidence for ritual use in both Mayan and Egyptian contexts clearly implicates the flowers. He also reports experiencing an altered state of consciousness after personally ingesting the flowers, but admits that the experience was nothing like the ecstasis elicited by the mushrooms. Diaz has also reported that the rhizomes are used recreationally by some groups of young people in the state of Chiapas.

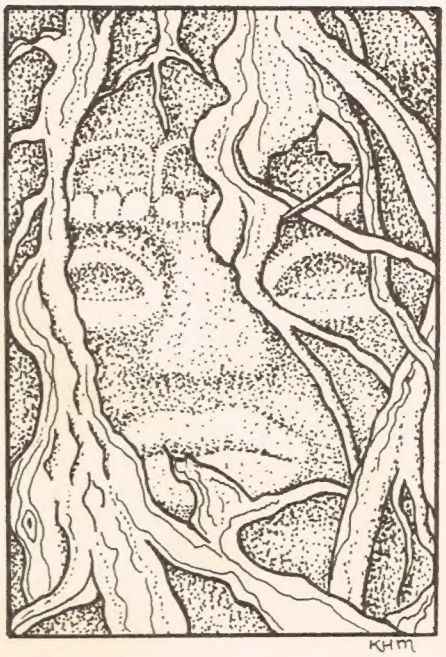
So, at least there appears to be some evidence that the water-lilies have some sort of psychoactivity, but it also seems clear that it is not what we would ordinarily characterize as "psychedelic." In summary, it seems that we may have to add *Nymphaea ampla*, the white water-lily, to an already long list of what I like to call "quasi-hallucinogens"; plants with ethnographic or archeological evidence of some kind of ritual use, but with a rather dubious chemistry that makes them less than ideal as transcendant shamanic vehicles.

## TIME AMONG THE MAYA

*An excerpt from an excellent philosophical/political/calendrical travel book. By Ronald Wright, 1989*
*Weidenfeld & Nicolson, Publisher*

I spent a week at Lamanai [Belize] and had the run of the place, sometimes with the archaelogists, more often alone. I was drawn to the northern part of the site, where tall pyramids of the Classic period stood cloaked with rain forest, uncut in a thousand years...Workers had made trails and cleared the front of some buildings, but most of the jungle was undisturbed. Huge tree trunks rose from buttress roots gripping the old stones like octopi. The forest floor was as open as English woodland, paved with rotting leaves; only ferns and philodendrons throve in the perpetual dusk. Here and there a few lean sunbeams, filled with dancing insects, threaded the gloom. The air smelled like a laundry basket—a blend of sweat, earth, and flowers. Fifty feet above the ground the canopy began—a vegetal wrangle in which branches and vines, palm and parasitic bromeliads silently occupied and defended their territories with unimaginable deliberation; each leaf taking the sunlight it could get, until all was absorbed or filtered, and only a submarine pallor reached the earth. Beneath the humus, roots grappled in the same relentless campaigns, sapping one another, seeking the smallest pocket of untapped nutrients, loosening their rivals' grasp. Most of these battles had reached stalemate, and this hostile equilibrium seemed to a busy, short-lived mammal like myself the very fabric of tranquillity.

The main pyramid rose 112 feet, lifting you above the jungle canopy. From its summit you looked out over lagoon, swamps, unbroken forest stretching toward Guatemala. The crowns of tall *guanacastes*, mahogany, and cedar trees swelled like broccoli among feather-duster palms. From below came liquid birdcalls, the croaking of frogs, a woodpecker's tattoo that sounded like a nail being pulled from a board. Occasionally you saw a flash of iridescent plumage or heard the sudden crack as a termite-eaten limb gave way. The whole of Lamanai could be seen from there, and in the morning, when shadows were long, many ancient buildings bulked beneath the trees.




"Almost anything you do
will be insignificant,
but it is very important that you do it."
**Mahatma Ghandi.**

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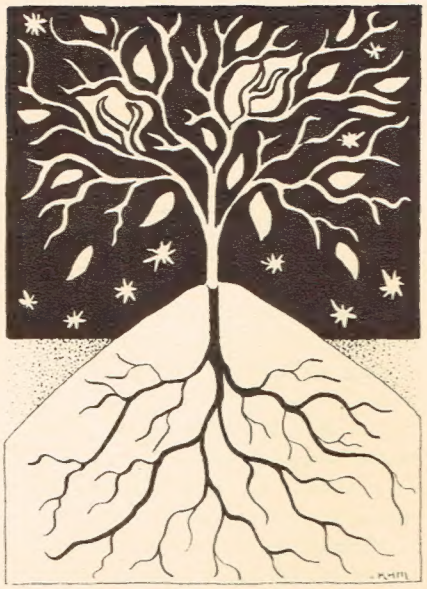
## PEOPLE RELY ON TREES

*A CASE FOR CONSERVATION*

The utility of rain forest species has often been cited as a reason for conservation. [Recently] researchers inventoried the tree species on four different two-and-a-half acre Amazonian tracts [in Brazil, Bolivia and Venezuela] and interviewed members of the Indian tribes who use the trees for food, medicine, and clothing; to fashion housing utensils and hunting weapons; even to produce dyes and glues.

Most of the tree species occurring on two of the study plots were found useful in at least one way; on the other two, about half were used in some way. For example, of one tract's 99 tree species, 34 are major or minor sources of food, and more than 20 percent are effective in preparing remedies for anything from stomach ailments to canker sores. The Indians using the trees of another plot indicated that more than 35 percent of those species have medicinal value.

Researchers also found that, within a given indigenous culture, other species cannot replace some of the useful rainforest flora.



Among the "nonsubstitutable" species are a palm used for making benches, a legume that contains an earache-alleviating substance, a mahogany that produces a natural insect repellent, and a St. John's-wort relative that is used to produce a contraceptive.

*Nature Conservancy Magazine, November/December 1989*

## THE HOLY HILLS OF SOUTHERN CHINA

Biologist Ted Anderson suggests we might adopt the "Holy Hills" concept, which has been effective in Southern China. The idea is that we need to save the nature in an area because the spirits live there. This inspires conservation among indigenous people, or anyone who takes the life of the land deeply into their hearts. Lawrence Durrell (quoted in Valerie Andrews' Descent Into the Mother, 1990) says that "Each *landscape* asks the same question: I am watching myself in you—are you watching yourself in me?"

The San Francisco Examiner (7/15/90) reports that in Thailand's impoverished northeast, Buddhist monks are making a last effort to save the rainforests. Monks have begun quietly ordaining trees, clothing them in the sacred orange robes previously reserved for holy men alone. It is believed that to cut such a tree is tantamount to killing a monk. ---Kat McKenna

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